

housing 202 at least twice. Further, the camera lens assembly 200 includes angle controllers 203 and 204 for controlling the rotational angle of the camera lens housing 202 around predetermined hinge axes by user manipulation.

[0057] A key array 111 having a plurality of keys is installed on the top surface of the first housing 101. A 2-way key 113 is provided on a side of the first housing 101. The 2-way key 113 can be used for menu selection or volume adjustment in a speech mode or standby mode. It can also provide a zoom-in/zoom-out functionality during photographing a still image or a moving picture. A pair of side hinge arms 115 face each other, spaced by a predetermined distance on the upper end of the first housing 101, and the camera lens hinge arm 201 is extended from one of the side hinge arms 115.

[0058] The second housing 102 has an auxiliary display 125 on its top surface and a main display 121 on its bottom surface. A speaker 123 is disposed above the main display 121. The second housing 102 is connected to the first housing 101 in such a manner that it can be rotated face to face in a receding/advancing direction from/toward the first housing 101 and turned crosswise to the first housing 101. The connection is made by means of a predetermined connection member 103.

[0059] The connection member 103 has a center hinge arm 131 between the side hinge arms 115. It rotates around a first hinge axis A1 extended widthwise from the first housing 101. The connection member 103 also has an auxiliary frame 133 at a portion of the center hinge arm 131, thus defining a second hinge axis A2 perpendicular to the first hinge axis A1. An end portion of the second housing 102 is engaged with the auxiliary frame 122 to rotate around the second hinge axis A2.

[0060] The camera lens hinge arm 201 is extended in the direction of the first hinge axis A1 from the side hinge arm 115 and contains the camera lens housing 202 therein. The camera lens housing 202 is rotatable around the first hinge axis A1 within the camera lens hinge arm 201. At the same time, it is rotatable around a third hinge axis A3 perpendicular to the first hinge axis A1. The camera lens hinge arm 201 includes the angle controllers 203 and 204 for adjusting the rotational angle of the camera lens housing 202. The angle controllers 203 and 204 are rotatably engaged with the camera lens hinge arm 201. The angle controller 203 is a first control knob for rotating the camera lens housing 202 around the first hinge axis A1. The angle controller 204, rotatably engaged at a predetermined position of the outer circumferential surface of the camera lens hinge arm 201, is a second knob for rotating the camera lens housing 202 around the third hinge axis A3.

[0061] The exposurers 235, 213, and 217 are a first opening (exposurer 235) in FIG. 13 for exposing the camera lens housing 202 in a side direction of the camera lens hinge arm 201, a second opening (exposurer 213) for exposing the camera lens housing 202 in a frontal direction of the mobile phone 100, and a third opening (exposurer 217) for exposing the camera lens housing 202 in a rear direction of the mobile phone 100. That is, the camera lens housing 202 is rotated around the first, second, and third hinge axes A1, A2, and A3 within the camera lens hinge arm 201 to enable photography of a still image or a moving picture through the first, second, or third exposurer 235, 213, or 217. The second exposurer

213 has a pair of holes that enables a user to select a photograph angle according to the angle at which the second housing 102 is opened.

[0062] FIGS. 9 and 10 are perspective views of the mobile phone 100 with the second housing 102 fully opened in a receding direction from the first housing 101. With the second housing 102 fully opened from the first housing 101, the main display 121 is directed toward the front of the mobile phone 100. If the user intends to photograph a still image or moving picture, he rotates the camera lens housing 202 is rotated in a manner that exposes the camera lens housing 202 through the second or third exposurer 213 or 217.

[0063] FIGS. 11 and 12 are perspective views of the mobile phone 100 where the second housing 102 is opened at a predetermined angle from the first housing 101 and then turned crosswise to the first housing 101. When the second housing 101 is opened at a predetermined angle, specifically about 90° or above from the first housing 101, it can rotate around the second hinge axis A2. Thus, the main display 121 faces in a selected one of both directions of the mobile phone 100. In photographing a still image or moving picture, the user rotates the camera lens housing 202 in the manner that exposes the camera lens housing 202 through the first exposurer 235. With the camera lens housing 202 exposed through the first exposurer 235 and the main display 121 positioned as illustrated in FIG. 11, the user can manipulate the mobile phone 100 in the same manner as a camcorder.

[0064] As in the first embodiment of the present invention, since the second housing 102 can rotate around the respective first and second hinge axes A1 and A2, the main display 121 can be exposed outward while the second housing 102 is in close contact with the first housing 101.

[0065] FIGS. 13 and 15 illustrate the camera lens assembly 200 for the mobile phone illustrated in FIG. 8. The camera lens assembly 200 comprises the camera lens hinge arm 201, the camera lens housing 202, the first and second control knobs 203 and 204, and the exposurers 235, 213, and 217.

[0066] The camera lens hinge arm 201 is integrally formed with one side hinge arm 115 of the first housing 101 and provides a space 211 opened in a side direction of the mobile phone 100. The camera lens housing 202 is held in the space 211 to rotate around the first hinge axis A1 and the third hinge axis A3 perpendicular to the first hinge axis A1. The opened side portion of the camera lens hinge arm 201 is closed with the first control knob 203. The first control knob 203 rotates around the first hinge axis A1, which in turn rotates the camera lens housing 202 around the first hinge axis A1. The second control knob 204 is rotatably installed at a predetermined position of the outer circumferential surface of the camera lens housing 202, specifically on the third hinge axis A3. The second control knob 204 rotates around the third hinge axis A3, which in turn rotates the camera lens housing 202 around the third hinge axis A3.

[0067] A pair of guide grooves 223 are formed circumferentially on the outer circumferential surface of the camera lens housing 202 to provide a rotation trajectory to the camera lens housing 202. The guide grooves 223 cross each other at predetermined positions and the intersections (not shown) are symmetrical with respect to the respective first